

EVALUATION STRATEGY FOR THE PrintSTEP PILOT PROJECTS

DRAFT¹

OVERVIEW OF THE APPROACH

The evaluation of the PrintSTEP pilot program aims to systematically identify the impacts the program has had on three types of stakeholders: printers, community residents, and the state government agencies administering the program. We want to know: what difference has PrintSTEP made to each of these three types of stakeholders? Ultimately, this will help determine whether or not to go forward with full implementation of the program in all states. In the process of doing so, improvement measures for the program can be put in place.

Because PrintSTEP is a multifaceted program, it has a variety of goals. The PrintSTEP Project Team has identified seven types of expected outcomes, each of which has several component parts.

- ▶ enhanced environmental protection;
- ▶ increased use of pollution prevention practices;
- ▶ simplified regulatory process for printers;
- ▶ improved efficiency of administration for state governments;
- ▶ enhanced public involvement;
- ▶ participants' realize benefits and are motivated to participate in PrintSTEP; and
- ▶ cost effectiveness for all stakeholders.

This broad set of expected outcomes will require a range of distinct data collection and analysis activities. Data will be gathered from printer's program applications, from telephone interviews, from in-person interviews and possibly from focus groups. Data will be collected before implementation, a short time after program implementation, and at the end of the pilot. A key feature of the recommended design is the use of a comparison group of printers as a tool for gauging the impact of the PrintSTEP program.

The evaluation design anticipates two main products: an Interim Report and Final Evaluation Report. The Interim Report would be based on data collected approximately one year after program implementation, focusing on the experiences of printers, the community and state agency staff with the initial implementation of the program. The Final Report would be based primarily on a comparison of pre-implementation data with data collected after three years of program operations from printers, community residents, and state agencies. The Final Report would address the program's impacts on all seven of the outcomes identified above.

¹ This Strategy is expected to remain draft until several factors become known, including the budget for the evaluation, the number of states participating, how each state is going to make the transition to PrintSTEP, and how many printers and community members will be involved in the pilots.

Section One of this document describes the rationale underlying the recommended program evaluation strategy. Section Two identifies the data collection activities necessary to support the program evaluation. Section Three provides a preliminary schedule for program evaluation activities. Finally, Section Four discusses each of the seven outcome domains in greater detail, identifying the specific information required and the proposed methods for collecting the information.

SECTION ONE: RATIONALE FOR THE RESEARCH DESIGN

The overall design of the evaluation is driven by the need to know what difference the program has made. For the PrintSTEP program, the best way to identify program impacts is a “double difference” design, i.e., one that employs both a comparison of data collected before and after implementation and also a comparison of data on participating printers and non-participating printers. To truly evaluate the impact of the PrintSTEP program, one would like to be able to say that PrintSTEP **caused** the changes that are seen when pre-implementation data is compared to post-implementation data. Without a comparison group, the study would be vulnerable to the criticism that any observed changes are the result of something other than the PrintSTEP program, such as the market demand for specific types of printing services, the cost of materials used in production, or the larger social and political context. Collecting information about both participating printers and a comparison group of printers allows us to control for certain “confounding” factors that might undermine our ability to attribute observed changes to the program. This will allow the study to make the strongest case it can that the PrintSTEP program did or did not have specific program impacts, such as increasing the use of pollution prevention techniques or increasing the level of public involvement.

Constructing a valid comparison group of printers must be done with great care, to avoid introducing bias into the analysis. For instance, if printers enter the PrintSTEP program because they are making an investment in new equipment and will need to modify their existing permits, a comparison with printers who are not making similar investments may be biased. The printers that are not investing in their equipment are more likely to be using older, more polluting production techniques. The method for identifying a comparison group can only be fully defined after the specifics are known of how the program will be implemented. We anticipate that it will be possible to recruit a comparison group of printers to participate in the study that will resemble the participating printers in a number of important respects. The printers should be of comparable size, use comparable printing technologies, and be subject to similar pre-implementation regulatory requirements. However, because PrintSTEP will be a voluntary pilot program, it is unlikely that the evaluation will be able to control for the crucial element of motivation. It is likely that the printers who select to participate in the program will differ systematically from those who choose not to participate, weakening the ability of the analysis to estimate the potential impacts of program implementation on the entire population of printers (i.e., including those who would volunteer and those who would not).

It will be difficult, if not impossible, to eliminate all “selection bias” from the analysis. Selection bias is a real concern for this study, because the study may be vulnerable to the criticism that the

program appears to have positive impacts because printers who choose to participate may be just those printers who are most likely to have positive outcomes, while those who are most likely to have negative outcomes may choose not to participate. Because printers participate in PrintSTEP on a voluntary basis, it will be virtually impossible to control for selection bias. The crucial matter of motivation is not something that can be readily observed, but it is likely to have a strong influence on the observed outcomes and on the likelihood that a printer will volunteer to participate in the program. As a consequence, the results identified for the pilot program may not accurately reflect the results that would be found for a study of a fully implemented program in which all printers were required to participate.

The best tool available for eliminating selection bias is the randomized experimental design, in which participants are chosen at random to either participate in the program or to serve as members of a comparison group. Because the selection is random, it can safely be assumed that the findings are not the result of inherent differences between the participating printers and the comparison. However, since participation in PrintSTEP is voluntary, a randomized selection process is not possible.

A comparison group approach is inevitably a weaker design than a randomized experiment; however, certain program features could minimize the impact of selection bias on the analysis. For instance, if a state were to implement the program only in a part of the state, a comparison group could be drawn from another part of the state where the option to participate in the program was not available. In general, specific features of the proposed programs will have a major impact on how well and how easily the comparison groups can be defined.

Although the comparison group approach will fall short of the ideal evaluation experiment, it will nevertheless help the evaluation gain considerable leverage on the analysis of key outcomes. For instance, it may be possible to compare the public involvement experience of printers participating in the PrintSTEP process with the public involvement experience in the regulatory process for the comparison group of printers. It may be possible to compare costs to the state related to participating and non-participating printers.

In studying the impact of the PrintSTEP program on printers, the evaluation must take into account the differences in impact of the program of two different types of printers, namely, printers who, because of their size, were subject to regulation prior to the implementation of PrintSTEP and printers who were too small to have been subject to regulation before the implementation of PrintSTEP. The evaluation must also take into account differences between the printers who choose to participate in the program and printers who do not choose to participate in the program. Thus the population of printers can be understood as falling into one of four categories as illustrated in the matrix below:

	Permitted prior to PrintSTEP	Not permitted prior to PrintSTEP
Volunteer to participate in the PrintSTEP program	1. Printers previously permitted who participate	2. Printers NOT previously permitted who participate
Do not volunteer to participate in the PrintSTEP program	3. Printers previously permitted who do NOT participate	4. Printers NOT previously permitted who do NOT participate

The evaluation will need to establish population estimates for each of the cells in the matrix and, to extent possible, identify systematic differences in the characteristics of each group of printers of the population.

SECTION TWO: DATA COLLECTION ACTIVITIES

Data for the evaluation study will be gathered in a variety of ways.

- ▶ Telephone survey of printers (including participating printers and a comparison group of printers);
- ▶ Printer application forms;
- ▶ In-person interviews with state agency staff;
- ▶ State-agency data; and
- ▶ Telephone survey of community residents.

It may also be necessary to make in-person visits to printers if certain key data elements are not included on the PrintSTEP application. However, for cost efficiency, the preferred approach would be to gather all data on printers from the application and the telephone survey.

Printers: Telephone Survey and PrintSTEP Application Forms

It is critical to the evaluation to understand how printers view the PrintSTEP program, how the costs of participating compare to the costs of not participating, and what changes participating printers have made as a result of their participation in the program. Our recommended approach is to interview both participating and non-participating printers three times: before the program is implemented, at an early point in implementation, and at the end of the pilot. The Baseline survey establishes a starting point against which subsequent measures can be compared. The Interim survey would collect information on the printers' opinions about the initial application process and about the costs they incurred as part of that process. This information is likely to be more accurate if collected at an interim point than it would be if it were collected at the end of the pilot. Instead, the Post-pilot survey would focus primarily on changes to the production process and measures of environmental impact, areas where any impacts are not likely to be fully evident earlier in the program.

Telephone surveys, accompanied by a fax-back form for cost information, are recommended as the best method to collect this information. In addition, the PrintSTEP application form and updates will be used to provide data on environmental releases before and after pilot implementation. The application template as it appears in the *Plain Language Workbook* may be modified slightly to capture the relevant data, and printers will complete it both at the time of application as well as at the end of the pilot.

Site visits to printers were considered as an additional information collection method, since they often provide extremely valuable insight into facility operations that cannot be gleaned through other means. However, this would add considerable cost to the evaluation. For this reason, site visits were not included in the strategy.

State Agency: In-person Interviews and State Agency Data

The critical outcomes expected from state and other regulatory authorities are measures of efficiency: how well the agency is able to coordinate to accomplish multi-media tasks concurrently, how much time the paper work and processing takes, and what the resulting costs will be. Our recommended approach is to conduct in-person interviews with government personnel at the baseline, at an interim point and at the end of the pilot. Questions about time and costs will be asked at all three times, but questions about the organization and multi-media office coordination will only be asked at the end. Comparison data will be collected from state agency staff who will be processing permits for the comparison group of printers.

In-person interviews are recommended as the preferred method to collect this information. The states have a more varied set of objectives for PrintSTEP, including outcomes at their own agency, as well as outcomes involving printers and the public. In-person interviews will be more effective at capturing the increased level of complexity and is estimated to be cost effective. State agency data, where it exists, will be collected to measure the length of time it takes to process permits under the old system versus processing time for PrintSTEP Notifications and Agreements.

Community Residents: Telephone Survey

For the community it will be critical to evaluate their awareness of printers' activities, understanding of where to get information, and effectiveness of being a participant in the PrintSTEP process. Our recommended approach is to interview community participants at an interim time and at the end of the pilot. It will be impossible to interview people before the pilot because there is no way of knowing who will later become a participant in PrintSTEP. Participants will be identified from the mailing lists for Actual Notice, and lists associated with the PrintSTEP Registry, Repository and public meetings. Interim interviews will collect information about the effectiveness of notice, access to information, and ability to comment effectively. End of Pilot interviews will assess the overall effectiveness of participation, and related improvements that result.

SECTION THREE: EVALUATION SCHEDULE

The following list outlines the steps needed for implementation and evaluation of PrintSTEP, and prerequisites for data collection. Because exact timing and duration is still uncertain at this stage in the project, this information is omitted here.

1 Research design finalized

2 Request for proposals goes out to states from EPA

3 States are selected for pilots

4 States begin implementation
States designate staff to run pilots and review PrintSTEP applications
States market program, invite printers to participate

5 Printers volunteer to participate

Critical implementation factors before finalizing data collection instruments:

- *Is program open to all printers state-wide, or to printers in a specified locality?*
- *How many printers volunteer?*
- *Do printers apply for PrintSTEP all at once, or phased in over a specified time period, or phased in as their permits come up for renewal (if they have permits)?*

6 Data collection instruments developed

Critical steps before baseline data collection occurs:

- *State staff must be identified to implement PrintSTEP*
- *All participating printers must be identified*

7 Baseline data collected from states and printers

Critical steps before interim data collection occurs:

- *Repository and registry must be established*
- *25% (?) of participating printers must have submitted their applications*
- *Actual and/or general notice must have gone out for all of these applications*

8 Interim data collected from printers and community members

9 Interim Report submitted

Critical step before final data collection occurs:

- *Pilot programs must be considered fully implemented (by what criteria?)*

10 Final data collected from printers, states and community members

11 Final Report submitted

SECTION FOUR: DATA COLLECTION AND ANALYSIS PLAN FOR EACH OF THE SEVEN OBJECTIVES

1. PrintSTEP provides enhanced environmental protection.

a) Emissions, wastes and discharges from printing (both overall and for each medium) have decreased.

Obtain quantitative data consistent with the program's environmental measures. Analyze results in each individual media, as well as overall changes to evaluate multi-media effects. Normalizing should be done to account for changes in production or product mix. If each facility is allowed to use their own index (i.e., their own denominator, such as sales or square feet of paper consumed), aggregate results would best be expressed as a *percent*.

What data:

- ▶ Specific pollutants or indicators (i.e., TSS) in wastewater. PrintSTEP will agree to 3-5 common printing discharges as indicators.
- ▶ Pounds or gallons of total hazardous waste generated
- ▶ Amount of materials previously being disposed that are now being recycled
- ▶ Degree of opportunity of materials to be exposed to storm water
- ▶ Total pounds of VOC emissions, total pounds of HAP emissions

or

- ▶ Total gallons of VOC-containing product used, total gallons of HAP-containing product used
- ▶ Unit of production/production index

How:

Participating printer submits Program Application, Storm Water Exposure Checklist, and Air Level Worksheets.

Method for collecting data from non-participating printers has yet to be determined.

When:

Before PrintSTEP, and at end of pilot

b) PrintSTEP Improves Printers' Ability to Achieve Compliance.

What data:

- ▶ Positive results from the following OTHER components of the evaluation indicate the improved ability for printers to achieve compliance:
 - Objective 3: PrintSTEP simplifies the regulatory process for printers.
 - Objective 6: There is sufficient motivation to participate in PrintSTEP.
 - Objective 7: PrintSTEP is cost effective for all stakeholders.

How:

Refer to the corresponding sections of the evaluation for how to collect data for the components listed above.

When:

Refer to the corresponding sections of the evaluation for when data will be collected for the components listed above.

2. Participation in PrintSTEP results in increased use of pollution prevention.**a) Printers use of specific pollution prevention practices has increased**

Because it will be difficult to ascertain whether this behavior change was, in fact, a result of PrintSTEP, a comparison group is recommended.

What data:

- ▶ Has PrintSTEP affected your ability to respond to regulatory requirements in a multi-media way?
- ▶ Do you use any of the following pollution prevention practices? (provide a list of practices, e.g, have you changed press or screen cleaning solvents to less hazardous formulations? have you implemented ink conservation or reuse options? Also ask if they have implemented any other practices not on the list.)
- ▶ Was the *Plain Language Workbook* helpful to you in implementing pollution prevention?

How:

Telephone survey of participating printers and a comparison group.

When:

Before PrintSTEP, interim, and at end of pilot.

b) Technical assistance provided through PrintSTEP is useful to printers and community members.

Survey must be sensitive to those using technical assistance (TA) strictly because they need help implementing Print STEP. Creation of new TA centers, or number of people accessing TA strictly as a result of PrintSTEP is not necessarily a measure of effectiveness.

What data:

Ask printers and community members:

- ▶ Have you ever used technical assistance? Before or after PrintSTEP?
- ▶ Was technical assistance available to you when you needed it?
- ▶ Was it helpful?
- ▶ What type of technical assistance did you request?
- ▶ Was it easy to find out how to get in touch with a technical assistance provider?

- ▶ Were the PrintSTEP documents helpful to you in this regard?

How:

Telephone survey of printers and community participants

When:

At end of pilot.

3. PrintSTEP simplifies the regulatory process for printers.

a) It is easier for printers to understand their regulatory requirements under PrintSTEP.

What data:

- ▶ Has PrintSTEP improved your understanding of your regulatory requirements?
- ▶ Which aspects of PrintSTEP were difficult to understand?
- ▶ Did the PrintSTEP documents make things easier to understand?

How:

Telephone survey of PrintSTEP printers.

When:

Before PrintSTEP, interim, and at end of pilot.

b) PrintSTEP increases printers' ability to respond to market conditions.

To determine if changes are, in fact, a result of PrintSTEP, a comparison group is recommended. The change being evaluated here may occur so infrequently that only anecdotal results may be available.

What data:

- ▶ Have you been delayed and/or prevented from responding to business opportunities (e.g., installing a new piece of equipment; meeting the request of a customer/potential customer for a different ink, coating, etc.; increasing production; bringing outsourced operations in-house) because of environmental requirements (e.g., a change to a permit or other approval from the local, state, or federal government)? In what way?

How:

Telephone survey of PrintSTEP printers and a comparison group.

When:

Before PrintSTEP, interim, and at end of pilot.

c) PrintSTEP is effectively administered as a multi-media program.

What data:

- ▶ Is there a single point of contact at the agency for all media/PrintSTEP questions?
- ▶ Has this person been accessible to you?
- ▶ Does the agency coordinate effectively across media and up through the organization?
- ▶ Did the coordination speed or slow the regulatory process?

How:

Telephone survey of PrintSTEP printers.

When:

Before PrintSTEP, interim, and at end of pilot

4. PrintSTEP is more efficient for the states.

a) States can administer PrintSTEP as a multi-media program.

Analysis will need to consider subjectivity of responses. It may be difficult to generalize from changes at the agency during the pilot to a fully implemented program.

What data:

- ▶ Does a recognizable cross-program infrastructure exist that functions for all media?
- ▶ Do you feel you are able to be more efficient at permitting printers?
- ▶ Are different program personnel able to coordinate effectively?
- ▶ Is there a clear understanding of roles and responsibilities at the agency?
- ▶ Is there a single point of contact at the agency for all media/PrintSTEP questions?
- ▶ Were the PrintSTEP *State Guide* and other documents helpful in administering the program?

How:

Interview state agency personnel.

When:

At end of pilot

b) PrintSTEP reduces the total amount of time between initial application and final Agreement (compared to the multiple applications under the original system). *Note: this outcome only applies to currently permitted facilities.*

Analysis will be affected by how a particular pilot state currently tracks processing time.

What data:

- ▶ Time between initial application and final approval for each individual permit under the traditional system
- ▶ Time between initial application and final approval for a PrintSTEP Agreement

How:

- ▶ Measure time it took to receive all applicable permits under the original system for comparison group of printers
- ▶ Measure time it took to receive a PrintSTEP Agreement for participating printers

When:

Baseline, interim, and at end of pilot

5. PrintSTEP involves the public.

Collection of pre-implementation data is not viable because it will not be known who the participants will be before the start of the pilot.

What data:

From community members:

- ▶ How were you informed of PrintSTEP/your local printer?
- ▶ Has PrintSTEP increased your awareness of the printers in your neighborhood, and what they do with regard to the environment?

- ▶ Did PrintSTEP provide an opportunity for you to participate in the decision-making process?
- ▶ Were you able to obtain documents from the Repository?
- ▶ Were you able to read and understand them?
- ▶ Was there enough information for you to participate effectively?
- ▶ If public meetings were held, were they accessible to you (time of day, handicap accessible, etc.)?
- ▶ Were your concerns effectively addressed?
- ▶ Has a single point of contact at the regulatory agency been available to you?
- ▶ Were they able to assist you effectively?

From states:

- ▶ What outreach responsibilities did you handle?
- ▶ Did the public submit comments on PrintSTEP applications? request public meetings? attend meetings?
- ▶ Were community concerns effectively addressed?

From printers:

- ▶ What outreach responsibilities did you handle?
- ▶ Did printers benefit from the public involvement aspects of PrintSTEP?
- ▶ Did you involve the public early?
- ▶ Were you more aware of your neighbors and of potential environmental and health impacts now than before PrintSTEP?

From all:

- ▶ Is the Information Repository useful?
- ▶ Has there been an improvement in your ability to communicate more effectively with printers/regulators/community members?
- ▶ Did the PrintSTEP documents help you with public involvement?

How:

Telephone survey and/or focus groups of state, printer and community participants

When:

Interim, and at end of pilot.

6. There is sufficient motivation to participate in PrintSTEP.

a) Participants would participate in a similar program again.

What data:

- ▶ Would you participate in a similar program again?
- ▶ What recommendations do you have to improve the program?

How:

Telephone survey and/or focus groups of state, printer and community participants

When:

At end of pilot

b) Participants responses on the future benefits they see from the increased communication among states, communities, and printers.

What data:

- ▶ What future benefits do you see from the increased communication?

How:

Telephone survey and/or focus groups of state, printer and community participants

When:

At end of pilot

7. PrintSTEP is cost effective for all stakeholders.

a) Printers' costs

Build a cost model for printers, identifying all the cost elements which might be influenced by the PrintSTEP process. It may be necessary to develop a separate cost estimate for printers of different sizes. It will be difficult to generalize from printers who participate in the pilot to costs of full-fledged implementation. *Note: Several costs items (operating, capital and inspection costs) were eliminated from the list because their relevance to the evaluation of PrintSTEP is insignificant.*

What data: .

- ▶ What filings were required prior to PrintSTEP? What fees were associated with them? Is there a fee for the PrintSTEP Notification or Agreement? (possible question for state agency).
- ▶ Labor costs associated with PrintSTEP application and with environmental regulations before PrintSTEP (printer recollection).
- ▶ Labor costs associated with PrintSTEP modifications and with modifications before PrintSTEP (printer recollection). (Account for process changes that would have triggered permit modifications but don't under PrintSTEP).
- ▶ Fees for outside engineers, consultants, or attorneys should be included above.
- ▶ Cost of outreach, including providing actual notice, if applicable.
- ▶ Cost savings from pollution prevention implementation.

How:

Telephone interview supplemented by a cost report that is sent and returned via fax.

When:

Interim and at end of pilot.

b) State (and local) government costs

Build a cost model for state administration of printer environmental regulations, identifying all the cost elements which might be influenced by the PrintSTEP process. *Note: Cost of inspections was deleted from this list because a change is not anticipated due to implementation of PrintSTEP.*

What data:

- ▶ administrative costs
- ▶ technical assistance
- ▶ public meetings

- ▶ repository
- ▶ notice
- ▶ other outreach, if applicable

How:

In-person interviews

When:

Baseline (to develop cost model), Interim and at end of pilot (to input to model).

c) Community costs

Build a cost model for community costs, identifying all the cost elements which might be influenced by the PrintSTEP process. It will be difficult to convert community time to monetary costs. *Note: Costs of repository and notice were deleted from this list because no cost is anticipated for the community.*

What data:

Collect information on labor costs (time spent) to community of participation in

- ▶ public meetings
- ▶ technical assistance
- ▶ reviewing information in repository
- ▶ other

Collect information on direct costs, if any

- ▶ monetary outlays (e.g. for child care)

How:

Telephone survey

When:

Before PrintSTEP and at end of pilot.

The following Outcomes are recommended for deletion for the reasons stated:

The multi-media aspect of PrintSTEP encourages printers to take a more holistic view of the facility.

No way to get meaningful response. Instead, it may be possible to check for trends in cross-media transfers among participating (and comparison group) printers.

State participant responses as to what helped and hindered the transition to a multi-media approach.

Not truly a program outcome.

The State Guide, Community Handbook, Plain Language Workbook are helpful.

Participants recommendations for improvements.

Covered elsewhere.

Participants responses on the benefits and detriments of PrintSTEP.

Covered elsewhere.

SUMMARY OF DATA COLLECTION ACTIVITIES FOR PrintSTEP EVALUATION

	Printer Appl. Forms	Printer Phone Survey (before PS)	Printer Phone Survey (interim)	Printer Phone Survey (end of pilot)	State Interviews (before PS)	State Interviews (interim)	State Interviews (end of pilot)	Commun'y Phone Survey (interim)	Commun'y Phone Survey (end of pilot)	Other
1a) Enhanced environmental protection.	✓									
1b) Improved compliance										see # 3, 6, & 7
2a) Increased use of pollution prevention.		✓	✓	✓						
2b) Technical assistance				✓					✓	
3a) Understanding regulatory requirements		✓	✓	✓						
3b) Responding to market conditions		✓	✓	✓						
3c) PrintSTEP is administered as a multi-media program		✓	✓	✓						
4a) States' multi-media programs				✓						
4b) States' turnaround time					✓	✓	✓			
5) PrintSTEP involves the public.			✓	✓		✓	✓	✓	✓	focus groups possible
6a) Participants would participate again.				✓			✓		✓	focus groups possible
6b) Future benefits from increased communication				✓			✓		✓	focus groups possible
7a) Printers' costs			✓+fax	✓+fax						
7b) State/local costs					✓	✓	✓			
7c) Community costs								✓	✓	

